

UNCLASSIFIED

**AD NUMBER**

AD376829

**CLASSIFICATION CHANGES**

**TO:** unclassified

**FROM:** confidential

**LIMITATION CHANGES**

**TO:**

Approved for public release, distribution unlimited

**FROM:**

Distribution: USGO: others to Director,  
Defense Atomic Support Agency, Washington,  
D. C. 20301.

**AUTHORITY**

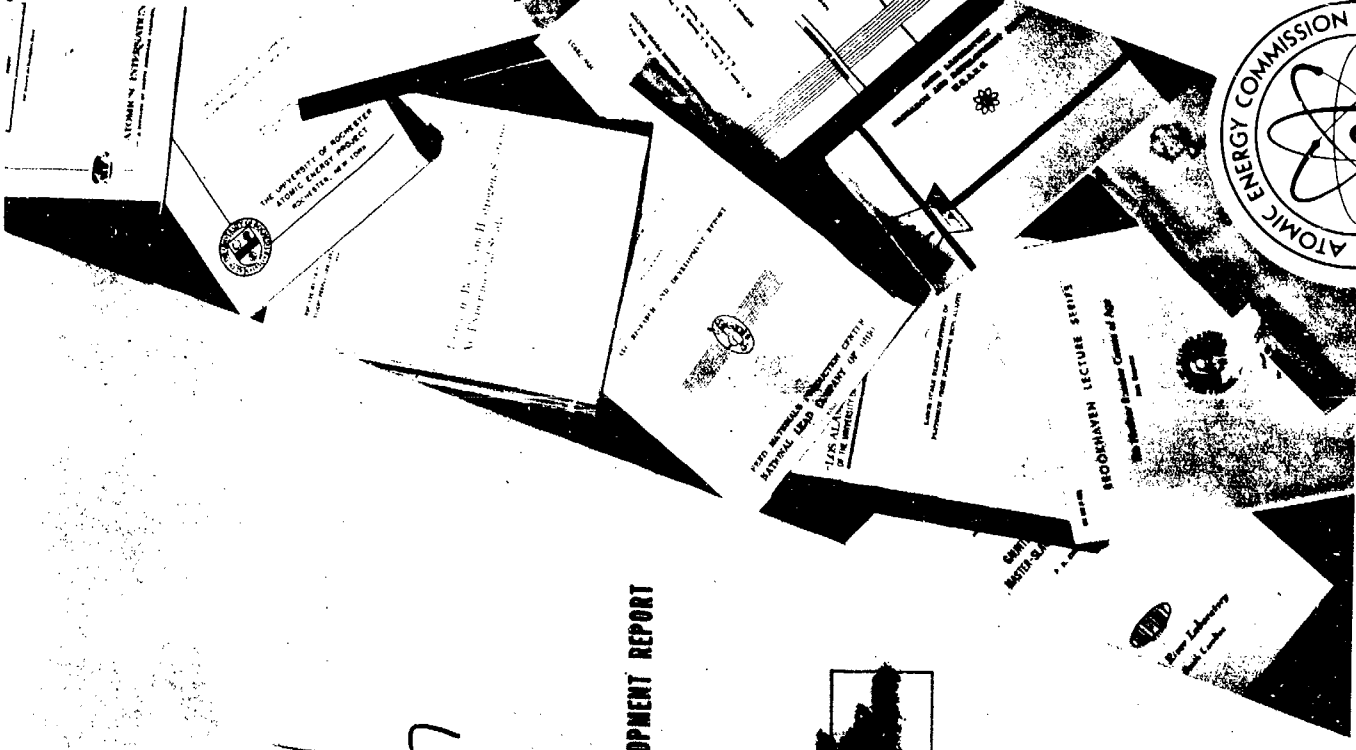
DSWA ltr., 18 Apr 1997; DSWA ltr., 18 Apr 1997

THIS PAGE IS UNCLASSIFIED

22

01  
XRD-77

AEC RESEARCH AND DEVELOPMENT REPORT

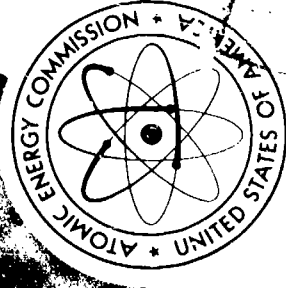


AD No. 376829  
DDC FILE COPY  
VTIAL  
1

Ci.e. 1 Repro.  
TECHNICAL LIBRARY  
of the  
29 NOV 1965  
DEFENSE ATOMIC  
SUPPORT AGENCY

# Facsimile Report

DDC  
NOV 8 1965  
RECEIVED



Reproduced by  
**UNITED STATES  
ATOMIC ENERGY COMMISSION**  
Division of Technical Information  
P.O. Box 62 Oak Ridge, Tennessee 37831

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

Incl 11 of 1

**CONFIDENTIAL**

Group 3 applies per Mr. Niles, DAS A Security of. Already  
16 Nov 62.

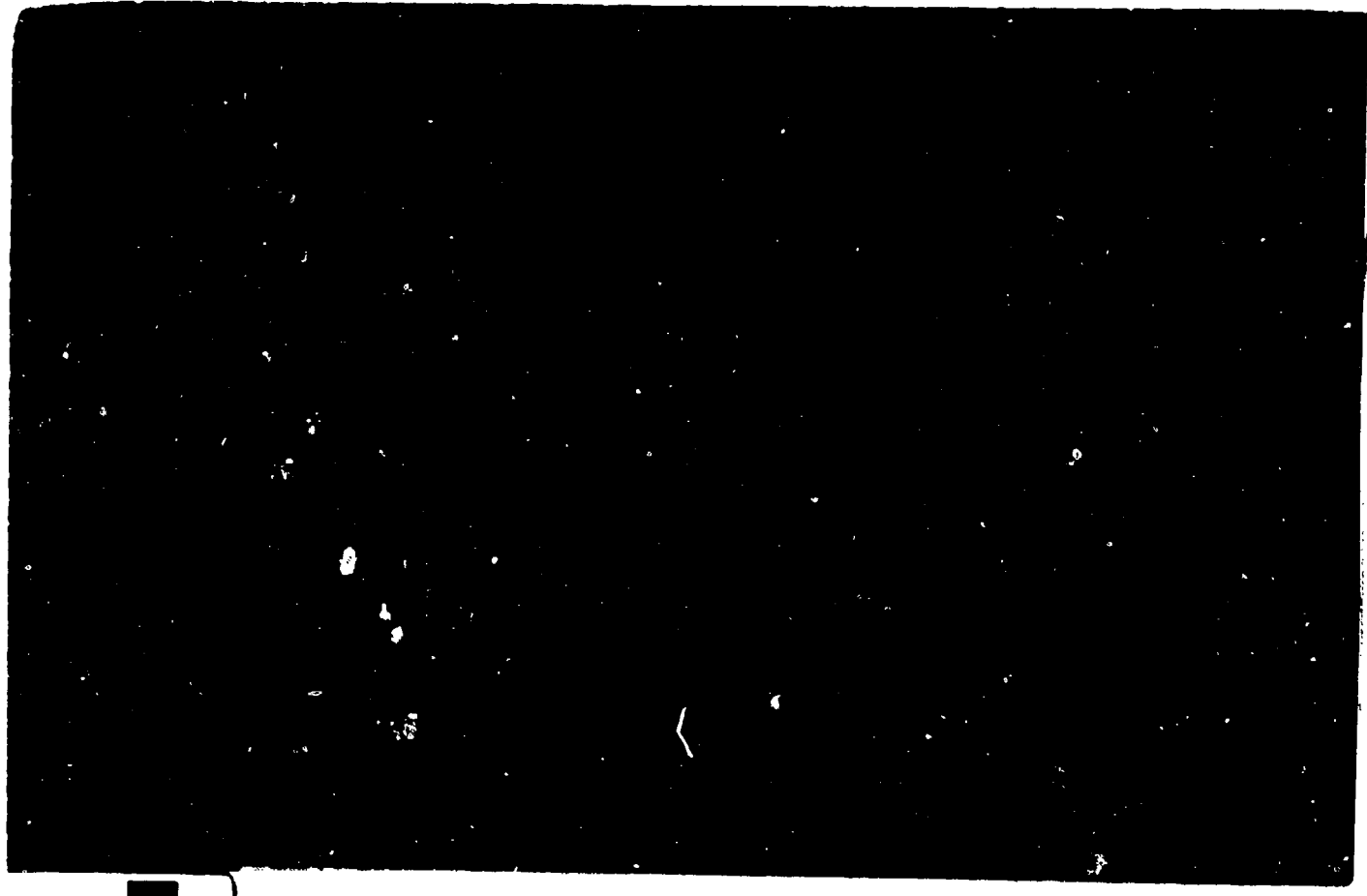
ADDITIONAL FOR	
CSSTI	WHITE SECTION <input type="checkbox"/>
DBC	CONF SECTION <input type="checkbox"/>
UNCLASSIFIED	<input type="checkbox"/>
JUSTIFICATION	
BY	
DISTRIBUTION/AVAILABILITY CODES	
DIST.	AVAIL. and/or SPECIAL
3	

IN ADDITION TO SECURITY REQUIREMENTS WHICH APPLY TO THIS DOCUMENT AND MUST BE MET, EACH TRANSMITTAL OUTSIDE THE AGENCIES OF THE U.S. GOVERNMENT MUST HAVE PRIOR APPROVAL OF THE DIRECTOR, DEFENSE ATOMIC SUPPORT AGENCY, WASHINGTON, D.C. 20301.

**CONFIDENTIAL**

**XRD**

**77**



(14) XRD-77

9-46

BUREAU OF SHIPS GROUP  
TECHNICAL INSPECTION REPORT

DISTRIBUTION LIMITED  
CONTAINS WEAPON DATA

GROUP 3

Downgraded at 12 year intervals  
Not Automatically Declassified

U.S.S. LST 545

TEST ABLE LWT, 13

*changed from Restricted from 16-44-25-8*  
This document contains information the disclosure of which in any manner to the public would be injurious to the national defense. It is to be controlled and its use is to be limited to authorized personnel only. It is prohibited to make any copy of this document or to permit its contents to be made known to unauthorized personnel.

Classification (changed to) ~~CONFIDENTIAL~~  
by Authority of JOINT CHIEFS OF STAFF JCS 174673R DATED 15 APRIL 1949  
By *John H. Burke* Date *MAY 16 1952*

OPERATION CROSSROADS

DIRECTOR OF SHIP MATERIAL

JOINT TASK FORCE ONE

REG. NO. 48

8928

CONFIDENTIAL

Security Information  
Atomic Energy Act of 1946

(6)

Operation Crossroads

(11)

1946

(12) 23p

(193600)

(3)

**CONFIDENTIAL**

**BUREAU OF SHIPS GROUP**

# TECHNICAL INSPECTION REPORT

**GROUP 3**

Downgraded at 12 year intervals  
Not Automatically Declassified

**CONFIDENTIAL**

Classification (Cancelled) (Changed to ---Security-Information  
 CONTAINERS OF STAFF JCS 1796/56 DATED 15 APRIL 1949

14-00000 MAY 16 1952

This report  
national  
meeting  
Beach  
Chicago  
is prohibited by law.

**APPROVED:**

**F. L. Forest,  
Captain, U.S.N.**

USS LST 545

Page 1 of 33 Pages

**CONFIDENTIAL**

Security Information  
~~CONFIDENTIAL~~  
ATOMIC ENERGY ACT 1946

CONFIDENTIAL

## TABLE OF CONTENTS

	PAGE NO.
Ship Characteristics Sheet	3
Midship Section	4
Overall Summary of Damage	5
Hull Technical Inspection Report (Section I)	11
Machinery Technical Inspection Report (Section II)	16
Electrical Technical Inspection Report (Section III)	22
Photographic Section (Section IV)	29
Commanding Officers Report (Appendix)	32

**CONFIDENTIAL**

Classification (Cancelled) (Changed to ~~Security Information~~  
Declassify on 1905/18 DATE 15 APRIL 1949

By Authority of John Edgar Hoover Director  
MAY 16 1952

USS LST 545

Page 2 of 33 Pages

**CONFIDENTIAL**

**DECLASSIFICATION AUTHORITY**  
**DATE** 11/11/2013  
**BY** 60322

CONFIDENTIAL

U.S.S. LST 545

SHIP CHARACTERISTICS

Building Yard: Missouri Valley B. and I. Co., Evansville, Indiana.

Commissioned: 23 March 1944.

HULL

Length Overall: 328 feet 0 inches.  
Length on Waterline: 316 feet 0 inches.  
Beam (extreme): 50 feet 0 inches.  
Drafts at time of test: Fwd. 7 feet 2 inches.  
Aft. 12 feet 3 inches.  
Limiting displacement: 4,080 tons.  
Displacement at time of test: 3,504 tons.

MAIN PROPULSION PLANT

Main Engines: Two General Motors Diesels, type: 12 - 567 A. One per main shaft.  
Reduction Gears: "Palk" - Single reduction. One per engine.  
Propellers: Two are installed in ship.  
Main Shafts: Two are installed in ship.  
Ships Service Generators: Three - 100 KW. - 230 volts, D.C. units are installed.

CONFIDENTIAL

Classification (Cancelled) (Changed to Security Information  
by Authority of JOINT CHIEFS OF STAFF JCS 1775/53 DATED 16 APRIL 1949  
BY *[Signature]* Date MAY 16, 1952

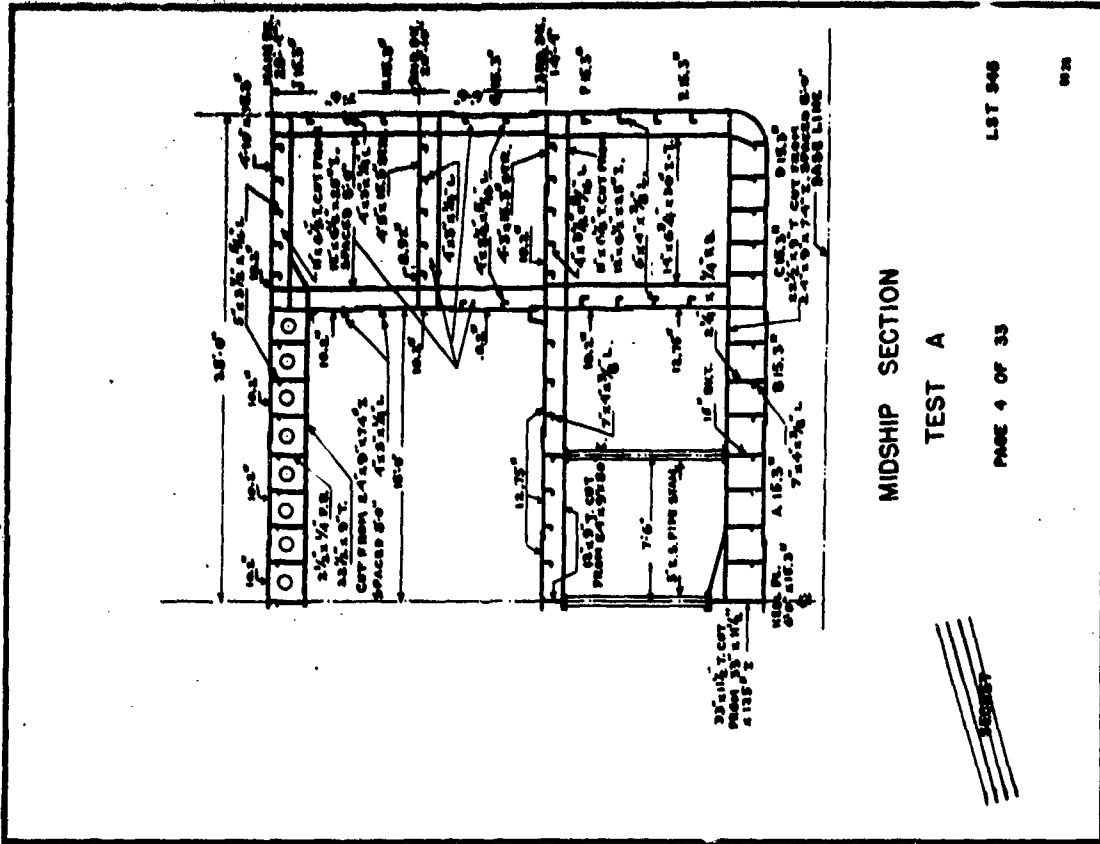
U.S.S. LST 545

Page 3 of 33 Pages

CONFIDENTIAL

Security Information

RESTRICTED AREA  
EXCLUDED FROM JULY 1948



MIDSHIP SECTION

TEST A

PAGE 4 OF 33

LST 545

012

TECHNICAL INSPECTION REPORT

OVERALL SUMMARY

I Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

There was no flooding, hence no change in drafts or list.

(b) Structural damage.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

There was no structural damage in way of electrical equipment.

(c) Other damage.

HULL

Not observed.

MACHINERY

None.

ELECTRICAL

No damage occurred to electrical equipment due

to test A.

~~SECRET~~

USS LST 545

## II. Forces Evidenced and Effects Noted.

(a) Heat.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of heat in way of electrical equipment.

(b) Fires and explosions.

HULL

None.

MACHINERY

No evidence.

ELECTRICAL

There were no fires or explosions in way of electrical equipment.

(c) Shock.

HULL

None.

MACHINERY

No evidence.

USS LST 545

Page 6 of 33 Pages

~~SECRET~~

ELECTRICAL

There was no evidence of shock in way of electrical equipment.

(d) Pressure.

HULL

The only evidence of pressure is that dirt inside ventilation ducts was loosened and collected in the cheese cloth screens at the duct terminals.

MACHINERY

No evidence.

ELECTRICAL

There was no evidence of pressure in way of electrical equipment.

(e) Effects peculiar to the atomic bomb.

HULL

None.

MACHINERY

None.

ELECTRICAL

Electrical equipment showed no evidence of damage peculiar to the atom bomb.

III. Results of Test on Target.

(a) Effect on machinery, electrical, and ship control.

HULL

Not observed.

USS LST 545

Page 7 of 33 Pages

~~SECRET~~

MACHINERY

None. The vessel shifted berths under her own power after test A. At this time all machinery was tested except for a few units that were inoperable before test A. Performance was normal.

ELECTRICAL

No damage was apparent to electrical machinery or ship control.

(b) Effect on gunnery and fire control.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

No damage was apparent.

(c) Effect on watertight integrity and stability.

HULL

None.

MACHINERY

No comment.

ELECTRICAL

No electrical damage affected watertight integrity

or stability.

SECRET

USS LST 545

Page 8 of 33 Pages

(d) Effect on personnel and habitability.

HULL

None.

MACHINERY

None.

ELECTRICAL

No electrical damage affected personnel or habitability.

(e) Effect on fighting efficiency.

HULL

None.

MACHINERY

None.

ELECTRICAL

No electrical damage affected the fighting efficiency of the vessel.

IV. Summary of Observers' Impressions and Conclusions.

HULL

No comment.

MACHINERY

LST 545 was outside the effective range of the explosion in test A.

SECRET

USS LST 545

Page 9 of 33 Pages

ELECTRICAL

No damage occurred to any electrical equipment on this vessel due to the test.

V. Preliminary Recommendations.

HULL

None.

MACHINERY

None.

ELECTRICAL

None.

SECRET

Page 10 of 33 Pages

USS LST 545

TECHNICAL INSPECTION REPORT

SECTION I - HULL

GENERAL SUMMARY OF HULL DAMAGE

I. Target Condition After Test.

- (a) Drafts after test; list; general areas of flooding, sources, or list.

There was no flooding, hence no change in drafts

- (b) Structural damage.

None.

- (c) Other damage.

Not observed.

II. Forces Evidenced and Effects Noted.

- (a) Heat.

None.

- (b) Fires and explosions.

None.

- (c) Shock.

None.

- (d) Pressure.

The only evidence of pressure is that dirt inside ventilation ducts was loosened and collected in the cheese cloth screens at the duct terminals.

SECRET

Page 11 of 33 Pages

USS LST 545

(e) Effects peculiar to the atomic bomb.

None.

### III. Results of Test on Target.

(a) Effect on machinery, electrical and ship control.

Not observed.

(b) Effect on gunnery and fire control.

None.

(c) Effect on watertight integrity and stability.

None.

(d) Effect on personnel and habitability.

None.

(e) Effect on fighting efficiency.

None.

### IV. Summary of Observers' Impressions and Conclusions.

No comment.

### V. Preliminary Recommendations.

None.

### VI. Instructions for loading the vessel specified the following:

ITEM	LOADING
Fuel oil	50%
Diesel oil	50%
Ammunition	50%

SECRET

USS LST 545

Potable and reserve feed water  
Salt water ballast

No restriction  
985

Details of the actual quantities of the various items aboard are included in Report 7, Stability Inspection Report, submitted by the ship's force in accordance with "Instructions to Target Vessels for Tests and Observations by Ship's Forces" issued by the Director of Ships Material. This report is available for inspection in the Bureau of Ships Crossroads Files.

SECRET

USS LST 545

# DETAILED DESCRIPTION OF HULL DAMAGE

## A. General Description of Hull Damage.

No damage.

## B. Superstructure.

No damage. Dirt inside ventilation ducts was loosened and collected in the cheese cloth screens at the duct terminals.

## C. Turrets, Guns, and Directors.

No damage.

## D. Torpedo Mounts, Depth Charge Gear.

Not applicable.

## E. Weather Deck.

No damage. The main deck cargo and vehicle hatch covers were secured by strongbacks and did not move. Elastic deflection of the main deck, as recorded by scratch gages was approximately one inch. There was no permanent set.

## F. Exterior Hull.

No damage.

## G. Interior Compartments (above w.l.).

No damage.

## H. Armor Decks and Miscellaneous Armor.

Not applicable.

## I. Interior Compartments (below w.l.).

No damage.

SECRET

## J. Underwater Hull.

No damage.

## K. Tanks.

No damage.

## L. Flooding.

None.

## M. Ventilation.

No damage.

## N. Ship Control.

No damage.

## O. Fire Control.

No damage.

## P. Ammunition Behavior.

No damage.

## Q. Ammunition Handling.

No damage.

## R. Strength.

No damage.

## S. Miscellaneous.

No comment.

SECRET

TECHNICAL INSPECTION REPORT

SECTION II - MACHINERY

GENERAL SUMMARY OF MACHINERY DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.

No data taken by machinery group.

(b) Structural damage.

No comment.

(c) Other damage.

None.

II. Forces Evidenced and Effects Noted.

(a) Heat.

No evidence.

(b) Fires and explosions.

No evidence.

(c) Shock.

No evidence.

(d) Pressure.

No evidence.

SECRET

USS LST546

Page 18 of 33 Pages

(e) Effects apparently peculiar to the atom bomb.

None.

### III. Effects of Damage.

(a) Effect on machinery and ship control.

None. The vessel shifted berths under her own power after Test A. At this time all machinery was tested except for a few units that were inoperable before Test A. Performance was normal.

(b) Effect on gunnery and fire control.

No comment.

(c) Effect on water-tight integrity and stability.

No comment.

(d) Effect on personnel and habitability.

None.

(e) Total effect on fighting efficiency.

None.

### IV. General Summary.

LST645 was outside the effective range of the explosion in Test A.

### V. Preliminary Recommendation.

None.

SECRET

USS LST645

Page 17 of 33 Pages

## DETAILED DESCRIPTION OF MACHINERY DAMAGE

### A. General Description of Machinery Damage.

(a) Overall condition.

The overall condition of the machinery was not changed by Test A.

(b) Areas of major damage.

None.

(c) Primary cause of damage in each area of major damage.

Not Applicable.

(d) Effect of target test on overall operation of machinery plant.

The target test had no effect on the overall operation of the machinery plant. All machinery was operated after the test. Performance was normal.

### B. BOLLERS.

Neither the heating boiler nor its appurtenances were damaged by Test A.

### C. BLOWERS.

Included under B.

### D. FUEL OIL EQUIPMENT.

Included under B.

### E. BOILER FEEDWATER EQUIPMENT.

Included under B.

SECRET

USS LST645

Page 18 of 33 Pages

F. Main Propulsion Machinery.

Undamaged. Both main engines were operated when the ship shifted berths under her own power. Performance was normal.

G. Reduction Gears.

Undamaged. Performance was normal during operation of the main engines.

H. Shafting and Bearings.

Undamaged. Shafting and bearings were checked with the ship underway. Performance was normal.

I. Lubrication System.

Undamaged. The lube oil system was checked with the ship underway. Performance was normal.

J. Condensers and Air Ejectors.

Not Applicable.

K. Pumps.

Undamaged. All pumps have been tested at normal capacity and pressure.

L. Auxiliary Generators (Turbines and Gears).

Not Applicable.

M. Propellers.

Undamaged. Visual inspection from the surface reveals no indication of damage. Performance was normal with the ship underway.

SECRET

USS LST545

Page 19 of 33 Pages

N. Distilling Plant.

Undamaged. One unit was inoperable before Test A. Its condition was not changed by the test. The other unit was placed in operation immediately after the test, and functioned normally.

O. Refrigeration Plant.

Undamaged. The refrigerating plant was placed in service immediately after Test A, and functioned normally.

P. Winches, Windlasses, and Capstans.

Undamaged. All deck machinery was used in normal operation and tested under load after Test A.

Q. Steering Engine.

Undamaged. Performance was normal with the ship underway.

R. Elevators, Ammunition Hoists, Etc..

Undamaged. The tank deck elevator was operated after Test A, and functioned normally.

S. Ventilation (Machinery).

Undamaged. All vent motors and fans are operable and have been tested at full rating.

T. Compressed Air Plant.

Undamaged. The compressors have been tested at full load.

SECRET

USS LST545

Page 20 of 33 Pages

U. Diesels (Generators and Motors)

Undamaged. Generator #2 and #3 have been operated at full load with no indication of any damage. Generator #1 was inoperable before Test A. Its condition was not changed by the test.

V. Piping System.

Undamaged. The piping systems have been tested under pressure.

W. Miscellaneous.

Undamaged. Laundry, galley, and machine shop equipment have been in operation since Test A. Performance was normal.

SECRET

USS LST545

Page 21 of 33 Pages

TECHNICAL INSPECTION REPORT

SECTION III - ELECTRICAL  
GENERAL SUMMARY OF ELECTRICAL DAMAGE

I. Target Condition After Test.

(a) Drafts after test; list; general areas of flooding, sources.  
Drafts and list were the same as before Test A.  
There was no flooding.

(b) Structural damage.

There was no structural damage in way of electrical equipment.

(c) Other damage.

No damage occurred to electrical equipment due to Test A.

II. Forces Evidenced and Effects Noted.

(a) Heat.

There was no evidence of heat in way of electrical equipment.

(b) Fires and explosions.

There were no fires or explosions in way of electrical equipment.

(c) Shock.

There was no evidence of shock in way of electrical equipment.

SECRET

USS LST545

Page 22 of 33 Pages

(d) Pressure.

There was no evidence of pressure in way of electrical equipment.

(e) Any effects apparently peculiar to the atom bomb.  
Electrical equipment showed no evidence of damage peculiar to the atom bomb.

III. Effects of Damage.

(a) Effect on propulsion and ship control.

No damage was apparent to electrical machinery or ship control.

(b) Effect on gunnery and fire control.

No damage was apparent.

(c) Effect on water-tight integrity and stability.

No electrical damage affected water-tight integrity or stability.

(d) Effect on personnel and habitability.

No electrical damage affected personnel or habitability.

(e) Total effect on fighting efficiency.

No electrical damage affected the fighting efficiency of the vessel.

SECRET

USS LST545

Page 23 of 33 Pages

IV. General Summary of Observers' Impressions and Conclusions.  
No damage occurred to any electrical equipment on this vessel due to the test.

V. Any Preliminary General or Specific Recommendations of the Inspecting Group.

None.

SECRET

USS LST545

Page 24 of 33 Pages

# DETAILED DESCRIPTION OF ELECTRICAL DAMAGE

## A. General Description of Electrical Damage.

### (a) Overall condition.

The overall condition of the electric plant is the same as before the test.

### (b) Areas of major damage.

None.

### (c) Primary causes of damage in each area of major damage.

None.

### (d) Effect of target test on overall operation of electric plant.

1. Ship's service generator plant - no effect.
2. Engine and boiler auxiliaries - no effect.
3. Electric propulsion - not applicable.
4. Communications - no effect.
5. Fire control circuits - no effect.
6. Ventilation - no effect.
7. Lighting - no effect.

### (e) Types of equipment most affected.

None.

SECRET

USS LST546

Page 25 of 33 Pages

## B. Electric Propulsion Rotating Equipment.

Not Applicable.

## C. Electric Propulsion Control Equipment.

Not Applicable.

## D. Generators - Ships Service.

No damage.

## E. Generators - Emergency.

Not Applicable.

## F. Switchboards, Distribution and Transfer Panels.

No damage.

## G. Wiring, Wiring Equipment and Wireways.

No damage.

## H. Transformers.

No damage.

## I. Submarine Propelling Batteries.

Not Applicable.

## J. Portable Batteries.

No damage.

## K. Motors, Motor Generator Sets and Motor Controllers.

No damage.

SECRET

USS LST546

Page 28 of 33 Pages

L. Lighting Equipment.

No damage.

M. Searchlights.

No damage.

N. Degaussing Equipment.

No damage.

O. Gyro Compass Equipment.

No damage.

P. Sound Powered Telephones.

No damage.

Q. Ship's Service Telephones.

Not Applicable.

R. Announcing Systems.

No damage.

S. Telegraphs.

No damage.

T. Indicating Systems.

No damage.

SECRET

USS LST545

Page 27 of 33 Pages

U. I.C. and A.C.O. Switchboards.

Not Applicable.

V. F.C. Switchboards.

Not Applicable.

SECRET

USS LST545

Page 28 of 33 Pages

SECTION IV

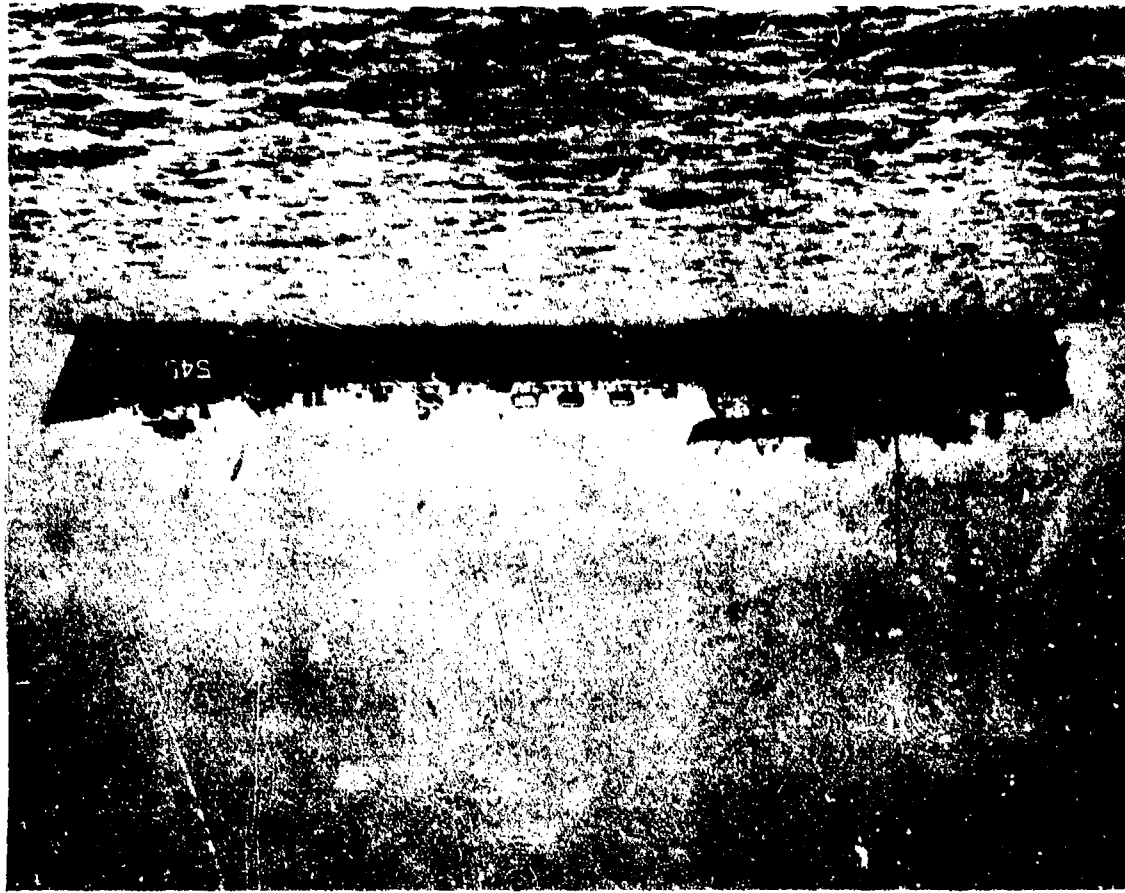
PHOTOGRAPHS

TEST ABLE

SECRET

Page 29 of 33 Pages

USS LST 545



AA-CR-227-87-75. View from off starboard beam after Test A.

SECRET

Page 30 of 33 Pages

USS LST 545

1978

APPENDIX

COMMANDING OFFICERS REPORT

TEST ABLE

USS LST 545

Page 32 of 33 Pages

~~SECRET~~



AA-CR-227-87-79. View from off port bow after Test A.

~~SECRET~~

USS LST 545

89 28

Page 31 of 33 Pages

# CONFIDENTIAL

REPORT # 11

## COMMANDING OFFICERS REPORT

### SECTION I

The U.S.S. LST #545 was anchored in Berth #19, 4000 yards north of the U.S.S. NEVADA. The material condition of the hull and superstructure at the time of the test was excellent; the material condition of the Engineering Department was poor. The overall condition was such that damage to test equipment, inflammables and ammunition could have been controlled.

There was no damage to the ship as a result of the test and the ability of the ship to operate or fight was not impaired.

The target test had no damaging affect whatsoever on the ship. There is no evidence of fires, extreme heat, or damage to any part of the ship. Extreme pressures were present and their effect was noted on the deck compression gauges. The scratch pattern on the gauges shows that the hull of the ship compressed and expanded very rapidly with an accordion like movement but after the passing of the blast, the hull returned to its original pattern. From all indications, it is considered that it would have been possible for the ship to have remained in operation both during and after the test. It is also believed that it would have been conceivably possible for personnel to have remained at their stations below decks and not have suffered major injuries from the blast.

SECRET

U.S.S. LST 545

Page 33 of 33 Pages

# CONFIDENTIAL

# **CAUTION**

**This Document Contains  
ATOMIC WEAPONS INFORMATION**

# **NOTICE**

**This document contains atomic weapons information. Distribution is limited to recipients authorized by the Defense Atomic Support Agency (DOD) and/or the Division of Military Application (AEC)**



Defense Special Weapons Agency  
6801 Telegraph Road  
Alexandria, Virginia 22310-3398

TRC

18 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER  
ATTENTION: OMI/Mr. William Bush (Security)

SUBJECT: Declassification of Reports

The Defense Special Weapons Agency has declassified the following reports:

/✓AD-366588 <del>4</del>	XRD-203-Section 12✓
AD-366589 <del>✓</del>	XRD-200-Section 9
AD-366590 <del>✓</del>	XRD-204-Section 13
AD-366591 <del>✓</del>	XRD-183
/✓AD-366586 <del>X</del>	XRD-201-Section 10✓
/✓AD-367487 <del>4</del>	XRD-131-Volume 2✓
✓✓AD-367516 <del>4</del>	XRD- <del>131</del> 143✓
✓✓AD-367493 <del>4</del>	XRD-142✓
AD-801410L✓	XRD-138✓
AD-376831L✓	XRD-83✓
AD-366759 <del>✓</del>	XRD-80
✓✓AD-376830L <del>4</del>	XRD-79✓
/✓AD-376828L <del>4</del>	XRD-76✓
/✓AD-367464 <del>X</del>	XRD-106✓
AD-801404L✓	XRD-105-Volume 1✓
/✓AD-367459 <del>X</del>	XRD-100✓

TRC

18 April 1997

Subject: Declassification of Report

AD-376836L ✓	XRD-98 ✓
AD-376835L ✓	XRD-97 ✓
AD-376834L ✓	XRD-96 ✓
AD-376833L ✓	XRD-95 ✓
<del>✓</del> AD-376832L ✓	XRD-94 ✓ <i>re-ingest</i>
✓✓ AD-367458 <del>x</del>	XRD-93 ✓
AD-367457 ✓	XRD-92-Volume 2
AD-367456 ✓	XRD-91-Volume 1
AD-367455 ✓	XRD-90
AD-367454 ✓	XRD-89
AD-367453 ✓	XRD-88
AD-367452 ✓	XRD-87
AD-366764 ✓	XRD-86
AD-376837L ✓	XRD-99
AD-366758 ✓	XRD-78
AD-366734 ✓	XRD-44
AD-366763 ✓	XRD-85
AD-376829L ✓	XRD-77 ✓
✓✓ AD-367462 <del>x</del>	XRD-103 ✓
✓✓ AD-367463 <del>x</del>	XRD-104 ✓
✓✓ AD-367461 <del>x</del>	XRD-102 ✓
AD-367460 ✓	XRD-101

TRC

18 April 1997

Subject: Declassification of Reports

AD-801406L ✓ XRD-114✓

In addition, all of the cited reports are now **approved for public release; distribution statement "A" now applies.**

*Arldith Jarrett*

ARDITH JARRETT  
Chief, Technical Resource Center